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region, at least a first trench and a second trench disposed in the channel region, the structure comprising:

a thick insulating layer disposed over the said first and second trench, the thick insulating layer being conformal to the said first and second trench profile;

a gate electrode disposed over the said first and second trenches, the gate electrode comprising a first vertical portion, a second vertical portion and a horizontal portion, wherein the first vertical portion being embedded inside the first trench, the second vertical portion being embedded inside the second trench, and the horizontal portion being disposed over the substrate and connecting the said first and second portions together; and

a first shallow doped region within the substrate disposed at an upper corner adjacent to the first vertical portion and a second shallow doped region disposed at an upper corner adjacent to the second vertical portion of the electrode; and

a first deep source/drain junction region extending from the first shallow doped region, and a second deep source/drain junction region from the second shallow doped region, wherein the first and second deep source/drain junction regions are disposed in a region within the substrate deeper than the first and second trench.

11. The structure according to claim 10, wherein the thick insulating layer is formed by thermal oxidation.

12. The structure according to claim 10, wherein the thickness of the thick insulating layer is about 0.1  $\mu\text{m}$ .

Respectfully submitted,

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By: Jiawei Huang  
Jiawei Huang  
Registration No. 43,330

**Correspondence Address:**  
4 Venture, Suite 250  
Irvine, California 92618  
(949) 660-0761